RESEARCH ARTICLE

Depression, Anxiety and Sexual Satisfaction in Breast Cancer Patients and their Partners-Izmir Oncology Group Study

Ahmet Alacacioglu[1]*, Eda Ulger[1], Umut Varol[1], Ibrahim Yildiz[1], Tarik Salman[1], Vedat Bayoglu[1], Ahmet Dirican[1], Lutfiye Demir[1], Murat Akyol[1], Yasar Yildiz[1], Yuksel Kucukzeybek[1], Gorkem Ataman[2], Huseyin Can[3], InciAlacacioglu[4], Mustafa Oktay Tarhan[4]

Abstract

Background: We aimed to investigate anxiety, depression and sexual satisfaction levels and the effects of depression and anxiety upon the sexual satisfaction of Turkish breast cancer patients and their partners. Materials and Methods: Data were collected from one hundred breast cancer patients and their partners, using three forms: one covering information about socio-demographic characteristics of the patients, the Hospital Anxiety and Depression Scale (HADs) and the Golombok-Rust Inventory of Sexual Satisfaction (GRISS). Results: The frequencies, avoidance and touch subscores were statistically significantly high in the patients. Among those with high anxiety scores, the frequency, communication, satisfaction, touch, and anorgasmic subscale scores of GRISS were found to be significantly high. Among the partners whose anxiety scores were high, only the premature ejaculation subscale was statistically significant. It was determined that for partners with higher depression scores, the communication, satisfaction, avoidance, premature ejaculation and erectile dysfunction subscores of GRISS were statistically higher compared to partners with lower depression scores. Conclusions: Patients' quality of life may be increased by taking precautions to reduce their and their partners' psychosocial and psychosexual concerns.

Keywords: Depression - anxiety - sexual satisfaction - breast cancer - Turkey

Asian Pac J Cancer Prev, **15 (24)**, 10631-10636

Introduction

Breast cancer is the most com mon malignancy in women and comprises 18% of all female cancers (McPherson et al., 2000; Alteri et al., 2011). In addition, breast cancer is the type that has been most subjected to research in terms of its spiritual and psychosocial aspects, because of its association with the organ that symbolizes femininity and sexuality (Gagnon et al., 1993; Baider et al., 2003). Sexuality includes one's feelings about one's own body, the need for touch, interest in sexual activities, communication of one's needs to a partner, and the ability to engage in satisfying sexual activities. For many women, however, sexuality extends beyond the ability to have intercourse, and encompasses ideas of body image, femininity, desirability and childbearing capabilities. It can also be considered as a broader concept that comprises emotional, intellectual and sociocultural components (Wilmont, 1998; Akyolcu, 2008).

The diagnosis and treatment of breast cancer creates a stressful situation, not only from the physical, but also from the psychological point of view (Anderson and Johnson, 1994; Stanton and Reed, 2003; Yavuzsen et al., 2012]. Due to the significance of the breast for women, anxiety concerns about the possible loss, as well as the actual loss of the breast, can damage feelings of sexuality, motherhood, body image and attractiveness. In particular, mastectomy is perceived to lead to a loss of femininity, fertility, attractiveness and sexuality, causing damage to a woman's body image, and as a result, the patient is likely to experience various psychosocial problems (Smigal et al., 2006). These psychosocial problems are certain to have negative effects on the sexual life of the woman concerned.

In studies, psychiatric disorders were determined in 47% of cancer patients (Derogatis et al., 1983). Depression and anxiety are generally considered to be the most important psychopathological comorbidities in cancer patients (Frick et al., 2007; Wang et al., 2012; Sun et al., 2013). The rates are high in women with breast cancer, most of whom suffer from both types of symptoms (Nazlican et al., 2012; Pumo et al., 2012). Moreover, negative mood states such as depression and anxiety

*[1]Medical Oncology, [3]Family Medicine, Ataturk Training and Research Hospital, Izmir Katip Celebi University, [2]Yasar University, [4]Internal Medicine, Faculty of Medicine, Dokuz Eylul University, Izmir, Turkey *For correspondence: dralaca2000@yahoo.com*

significantly increase the risk of mortality in women with breast cancer (Schou et al., 2004).

According to system theory, major events such as a serious illness impact the larger family and social networks, not just the person directly affected. [Manne et al 2003]. Partners of cancer survivors report problems including fatigue, sleep disturbance, eating disorders, mood disorders, relationship difficulties, sexual morbidity, work and lifestyle disruption, and poor quality of life (Hodgkinson et al., 2007). In recent years, despite the increase in the number of studies examining the psychosocial changes in those diagnosed with breast cancer, few studies investigate the effects of the disease on partners. Partners are required to support their spouses in their daily lives, to accompany them during treatments and examinations, to take greater responsibility for their home and children, all of which can lead to psychosocial problems (Given et al., 1992; Compas et al., 1994). In several studies, it was found that the partners themselves often experienced higher levels of distress than the cancer patient, and that there is a high concordance between the distress levels of the patient and the partner (Manne et al., 2004; Segrin et al., 2007; Yusoff et al., 2011). The aim of the present study therefore was to investigate anxiety, depression and sexual satisfaction levels of Turkish breast cancer patients and also their partners.

Materials and Methods

Data collection

One hundred breast cancer patients and their partners were enrolled in this study. The patients were receiving chemotherapy or hormone therapy in Izmir Katip CelebiUniversity Ataturk Research and Training Hospital, Clinics of Medical Oncology between June 2012 and June 2013. The data were collected using a series of forms, which were completed during face-to-face interviews by trained interviewers for determination of the sexual satisfaction and psychological status of the patients and their husbands. Out of 108 patients, 8 were excluded from the study, since two patients and six partners declined to complete the questionnaire. Therefore, the analysis was conducted on data for 100 patients and their partners. The participants were informed about the study and their oral and written consents were obtained.

The first form consisted of questions regarding the *socio-demographic characteristics* of patients. The second form was the Hospital Anxiety and Depression Scale (HADs).The HADs is a self-assessment scale specifically developed for detecting states of depression and anxiety in the setting of a hospital medical outpatient clinic, and has been found reliable. HADs were introduced into general hospital practice in order to facilitate the substantial task of detection and management of emotional disorder in patients under investigation and treatment in medical and surgical departments. The scale is made up of 14 items consisting of HADs-A (Anxiety, 7 questions) and HADs-D (Depression, 7 questions) subscales (Zigmond and Snaith, 1983). All items are rated on a four-point scale, scored from 0 to 3, resulting in maximum subscale scores of 21, and an overall total score ranging from 0 to 42, with higher scores indicating greater levels of depression and anxiety. The HADs, which was translated into Turkish by Aydemir et al. (1997) satisfied validity and reliability studies, and was reported as a suitable tool for the Turkish population. The reliability coefficients for the anxiety and depression HADs subscales for the Turkish patient group were 0.85 and 0.78, respectively.

The final form was the *Golombok-Rust Inventory of Sexual Satisfaction (GRISS)*. The GRISS is a 28-item questionnaire used to evaluate the presence and extent of sexual problems. It has two different versions, one for each gender. It contains 12 subscales evaluating impotence, premature ejaculation, orgasmic disorder, vaginismus, lack of communication, avoidance in males and females, nonsensuality, insensitivity in males and females, and dissatisfaction in males and females. A score of 5 or more points in any category indicates sexual dysfunction (Rust and Golombok, 1986). A validation and reliability study of The Golombok-Rust Inventory in Turkish population was done by Tugrul et al. (1993). In the current study, the male and female versions of the questionnaire were used.

Statistical analysis

All data were analyzed using SPSS for Windows version 20.0. Descriptive statistics summarized frequencies and percentages for categorical variables, mean and standard deviation for continuous variables. For independent samples, T-tests were used to compare categorical variables. A value of $p<0.05$ was considered as significant.

Results

The mean age of breast cancer patients and their partners were 44.7±6.4 (range:30-60) and 49.6±8.3 (range:24-71), respectively. About 15% of the partners and 11% of the patients were educated to university level. Most patients (69%) and their husbands (56%) were educated to primary level. Forty patients (40%) had local disease, 48 patients (48%), locally advanced disease, and 12 patients (12%), advanced disease. While this study was in progress, sixty patients were receiving chemotherapy, and forty, hormone therapy. Fifty two had undergone breast conservation surgery, and the remaining forty-eight, modified radical mastectomy.

HADs A represents anxiety scores and HADs Drepresents depression scores. The HADs A scores of the patients were 8.72±6.34, and the HADs A scores of the male partners were 6.9±4.1 (p=0.017). The HADs D scores of patients were 6.88±5.99 while the HADs scores of their partners were 6.72±4.12 (p=0.82). The overall HADs scores for patients and their partners were 15.61±11.48 and 13.68±7.6, respectively (p=0.16). While for anxiety, the patients' the scores were significantly higher than their partners', for depression, there was no significant difference between the scores of the two groups.

In the Turkish HADs scale validation study, the cut off values for depression and anxiety were 7 and 10 respectively. In our study, we found that 41% of patients and 30% of partners showed results above the cut-off for anxiety, and 46% of patients and 50% of partners

Table 1. Relation between Socio-demographic Variables and Depression, Anxiety and total HAD Scores

		Anxiety	p	Depression	p	Total HAD	p
Education	Primary School	9.6±6.2	0.08	7.7±6	0.06	17.3±11.2	0.05
	High School	7.2± 6.6		5.8±5.8		13±12	
	University	5.7 ±5		3.5±5.9		9.2±9.8	
Cancer History in Family	Yes	7.8 ±5.3	0.15	6.5 ±6.2	0.6	14.4 ±11.2	0.28
	No	9.6 ±6.8		7.2±5.7		16.8 ±11.6	
Type of Surgery	MRM	8.7± 6.6	0.51	6.5± 5.8	0.91	15.3 ±11.5	0.68
	MKC+AD	8.9± 6.1		7.4± 6.1		16.3 ±11.4	
Chemotheraphy	Active	9.2± 6.3	0.47	7.2± 5.4	0.61	16.5 ±10.9	0.50
	Passive	8.3± 6.3		6.6 ±6.3		14.9 ±11.8	
Disease Stage	Local Disease	8.2± 6.2	0.81	7.2± 6.1	0.67	15.5± 11.8	
	Locally Advance Disease	9.0± 6.3		6.9± 6.0		15.9 ±11.2	
	Advanced Stage Disease	9.1± 7.1		9.1± 7.1		14.6± 12.0	

Table 2. Comparison of Glombock-Rust Sexual Satisfaction of the Patients and their Partners

	Patient	Partners	p
Frequency	2.83±1.15	2.10±0.99	<0.0001
Communication	2.14±1.76	1.94±1.44	0.37
Satisfaction	2.40±2.06	2.81±1.84	0.14
Avoidance	2.50±2.13	1.10±1.42	<0.0001
Touch	2.68±2.46	1.38±1.59	<0.0001
Vaginismus	3.30±1.65		
Anorgasmi	3.97±2.43		
Premature Ejaculation		2.32±1.39	
Erectile dysfunction		1.66±1.26	

had depression values that were above the cut-off point. When the anxiety, depression and total HADs scores of the patients were analyzed in terms of educational status and family cancer history, we established that these were associated with reduced anxiety, depression and total HADs scores, which was not statistically significant. The anxiety, depression or total HADs scores were not affected by whether patients had undergone mastectomy or breast conserving surgery, or whether they were receiving chemotherapy or not at the time of survey. Additionally, we found that anxiety, depression and total HADs scores of the patients with local disease were insignificantly lower than those of patients with locally advanced or advanced stage disease (Table 1).

The accepted cut-off value of GRISS for Turkish people [23] is 5, and accordingly, it was determined that 12 patients (12%) had problems with avoidance, 10 with satisfaction, 17 with vaginismus, 34 with anorgasmi, and 15 with touch. Regarding the partners, 3 (3%) had problems with avoidance, 12 with satisfaction, 6 with premature ejaculation, and 4 with touch. The GRISS scores for both groups are shown in Table 2. When the patients and their partners were evaluated with respect to GRISS, we found statistically significant high frequencies for the avoidance and touch subscores among the patients.

Among the patients with high anxiety scores, the GRISS scores for frequency, communication, satisfaction, touch, and anorgasmisubscale were found to be significantly high. For partners with high anxiety scores, the statistical significance was found only for the premature ejaculation subscale (Table3). Among the patients with high GRISS depression scores, the difference in the frequency, communication, satisfaction, touch, vaginismus and anorgasmisubscores of GRISS were statistically significant when compared with the patients with lower depression scores. Regarding the male partners,

Table 3. Comparison of GRISS, Depression and Anxiety Levels of the Patients and their Partners

	Patient	p	Partners	p
Frequency				
anxiety ≥ 10	3.16±1.05	0.01	2.1±1.04	0.951
anxiety < 10	2.6±1.16		2,3±1.2	
depression ≥ 7	3.13±1.09	0.017	2.16±0.99	0.614
depression < 7	2.58±1.14		2.05±1.00	
Communication				
anxiety ≥ 10	2.62±1.76	0.025	2.34±1.37	0.072
anxiety < 10	1.82±1.7		1.77±1.45	
depression ≥ 7	2.65±1.71	0.008	2.25±1.52	0.035
depression < 7	1.71±1.71		1.64±1.31	
Satisfaction				
anxiety ≥ 10	3.11±2.42	0.007	3.14±1.97	0.232
anxiety < 10	1.9±1.6		2.66±1.77	
depression ≥ 7	3.15±2.33	0.001	3.36±1.86	0.002
depression < 7	1.76±1.55		2.26±1.66	
Avoidance				
anxiety ≥ 10	2.83±2.23	0.19	1.48±1.53	0.082
anxiety < 10	2.27±2.04		0.94±1.35	
depression ≥ 7	2.87±2.33	0.11	1.42±1.53	0.021
depression < 7	2.19±1.91		0.77±1.23	
Touch				
anxiety ≥ 10	3.6±2.75	0.003	1.61±1.62	0.351
anxiety < 10	2.04±2.01		1.28±1.58	
depression ≥ 7	3.64±2.75	<0.001	1.68±1.76	0.057
depression < 7	1.86±1.83		1.08±1.35	
Vaginismus				
anxiety ≥ 10	3.41±1.75	0.586		
anxiety < 10	3.23±1.58			
depression ≥ 7	3.74±1.82	0.017		
depression < 7	2.93±1.39			
Anorgasmic				
anxiety ≥ 10	4.76±2.27	0.007		
anxiety < 10	3.43±2.42			
depression ≥ 7	4.86±2.37	0.001		
depression < 7	3.21±2.24			
Premature Ejaculation				
anxiety ≥ 10			2.94±1.68	0.003
anxiety < 10			2.05±1.15	
depression ≥ 7			2.61±1.44	0.039
depression < 7			2.03±1.29	
Erectile dysfunction				
anxiety ≥ 10			1.94±1.41	0.14
anxiety < 10			1.54±1.17	
depression ≥ 7			2.03±1.42	0.003
depression < 7			1.29±0.95	

for those with high depression scores, the communication, satisfaction, avoidance, premature ejaculation and erectile dysfunction subscores were all statistically higher than for their counterparts with lower depression scores (Table 3).

Discussion

This study aimed to assess depression, anxiety and the

sexual satisfaction of the breast cancer patients and their partners. In our study, no significant effect upon depression or anxiety was found for the stage of the disease, type of surgery, nor whether or not the patient was undergoing chemotherapy. We also found that, for depression, 46% of patients and 50% of partners showed results above the cut-off, while for anxiety, the corresponding levels were 41% of patients and 30% of partners. Although the male partners were found to be more depressive than the patients, it was clear that their anxiety range was lower than for patients. These results have therefore established that the psychosocial and psychosexual effects of breast cancer extends beyond the patients themselves to their partners.

In the literature, some studies emphasize the high depression rates of both the patients and partners. For example, Grundfield et al. (2004) concluded that breast cancer patients and their family members experienced similar levels of depression, but the anxiety level of family members was found to be higher than the patients themselves. Alacacıoglu et al. (2009) found that breast cancer patients had higher levels of depression than partners. Both Manne et al. (2003) and Segrin et al. (2007) found that partners often experienced higher levels of distress than cancer patients, and but also that there is a high concordance between the patient's and partner's level of emotional distresses. Segrin et al. (2005) concluded that breast cancer patients and their partners followed similar trajectories during the illness; that is, the partner's level of depression increased with the patient's, making it increasingly difficult to cope with the illness.

In our study, most of the participants were educated to primary level. Analysis of the education levels of the patients and partners in respect to anxiety and depression scores shows that as educational level increased, anxiety and depression levels decreased. This may reflect a significant influence of education level on the perception of and reaction to the cancer diagnosis, and also on the management of the illness. Education level also affects the efficiency and versatility of an individual's coping style during difficult times (Mirowsky and Ross 2003). A low education level in the caregiver could also contribute to the late presentation of the patient for treatment, which in itself leads to even more stressful outcomes related to negative effects on a patient's treatment, symptoms, functionality and life expectancy. Furthermore, a lower level of education is associated with lower income, which also causes stress and other psychological problems (Nik Jaafar et al., 2014). In the literature, studies showed the important role of lower educational status on depression and anxiety (Zainal et al., 2013). In a study conducted by Hong et al. (2014), educational level was found to be the major factor in higher levels of depression. Similar results were found by Nik et al. (2014) who concluded that caregivers with secondary education or below were 9.3 times more likely to develop depression, compared to those with tertiary education. Vanderwerker et al. (2005) determined that caregivers with tertiary education are more likely to seek help for mental health concerns. In another related study, clinicians showed that only mild degrees of anxiety were experienced by highly educated patients (Vukojevic et al., 2012). A diagnosis of disease such as cancer not only threatens life, it also causes more immediate sexual problems. This is because sexuality is a significant aspect of physical, psychological and social life, which is direcly affected by individuals' perception of their body, their sexual reactions, roles and relationships (Pelusi, 2006; Arıkan, 2010). The stress factors caused by the disease process, combined with the side effects of treatments can negatively affect the patients' sexual relationships with partners. (Avis et al., 2004). More negative psychosocial outcomes overall were found in women who had preexisting marital difficulties, a poor body image, a lower educational level, and sexual dissatisfaction (Schover, 1999). A study conducted by Morris et al. indicated that two main issues affect breast cancer patients' sexuality after surgical treatment: personality and psychological factors. They found that clinical factors did not predict quality of sexual life, sexual functioning or sexual enjoyment (Morris et al., 1977). Depression and anxiety in women are often associated with an increase in female sexual dysfunction and an increase in marital discord. In our study, the patients with higher levels of depression and anxiety were also affected by sexual problems. A number of other studies also investigated the sexual problems of breast cancer patients. Al-Gazal et al. (2000) found that a significant number of women undergoing radical mastectomy experienced both psychosocial and also sexual problems, namely decreased coital frequency and anorgasmi. Other authors stated that sexual dysfunction is common after breast cancer therapy, and impacts quality of life (Stienberg et al., 1985). Harirchiet al. (2012) conducted a study revealing a relatively high prevalence of sexual dysfunction among Iranian breast cancer patients.

Male partners may curb their sexual demands because of their female partner's anxiety, depression and altered body image, or fear of causing them physical pain (Stillerman, 1984). Because of the reduced frequency of intercourse and degree of satisfaction, women may come to mistakenly believe that their partner is secretly considering abandoning them for a healthy partner (Anllo 2000). Thus, due to the illness, male partners are affected in respect to sexuality. In our study, the male partners with high anxiety and depression scores also had high the GRISS subscores. However, statistical significance was only for premature ejaculation in the partners with high anxiety levels; and for communication, satisfaction, avoidance, premature ejaculation and erectile dysfunction in the partners with high depression. We acknowledge that our study has a rather limited number of patients, nevertheless, the results suggest that the increased sexual problems of the male partner may be caused by the depressive effects of the illness on themselves, as well by the condition of their partners.

In conclusion, breast cancer is a phenomenon that may have psychosocial and psychosexual effects both on the patients and also their partners and other family member. Thus, it is important to take precautions to reduce this psychosocial and psychosexual contagion of the breast cancer patients and their partners, thus improving the quality of life for both.

References

Akyolcu N (2008). Meme kanserinde cerrahigirisim sonrasicinsel yasam. *Meme SaglıgiDergisi*, **4**, 77-83.

Al-Ghazal SK, Sully L, Fallowfield L, Blamey RW (2000). The psychological impact versusvvvvv of immediate rather than delayed breast reconstruction. *Eur J Surg Oncol*, **26**, 17-19.

Alacacioglu A, Yavuzsen T, Dirioz M, Yilmaz U (2009). Quality of life, anxiety and depression in Turkish breast cancer patients and in their husbands. *Med Oncol*, **26**, 415-9.

Alteri R, Bandi P, Brinton L, et al (2011). Breast Cancer Facts & Figures, American Cancer Society, Atlanta, Georgia.

Anderson M.S, Johnson J (1994). Restoration of body image and self-esteem for women after cancer treatment. A rehabilitative strategy. *Cancer Practice*, **2**, 345-9.

Anllo LM (2000). Sexual life after breast cancer. *J Sex Marital Ther,* **26**, 241-8.

Arıkan N (2010). Traumatic an experience : Breast cancer and mastectomy. *J Crisis,* 39-46.

Avis NE, Crawford S, Manuel J (2004). Psychosocial problems amoung younger women with breast cancer . *Psychooncology*, **13**, 295-308.

Aydemir O (1997). Validity and reliability of turkish version of hospital anxiety and depression scale. *Turk Psikiyatri Dergisi,* **8**, 280-7.

Baider L, Andritsch E, Uziely B, et al (2003). Do different cultural settings affect the psychological distress of women with breast cancer? A randomized study. *Eur J Cancer Care,* **12**, 263-73.

Compas BE, Worsham NL, Epping-Jordan JE, et al (1994). When mom or dad has cancer: Markers of psychological distress in cancer patients, spouses, and children. *Health Psychol*, **13**, 507-15.

Derogatis LR, Morrow GR, Fetting J (1983). The prevalence of psychiatric disorder among cancer patients. *JAMA*, **249**, 751-5.

Frick E, Tyroller M, Panzer M (2007). Anxiety, depression and quality of life of cancer patients undergoing radiation therapy: a cross-sectional study in a community hospital outpatient centre. *Eur J Cancer Care*, **16**, 130-6.

Gagnon P, Massie MJ, Holland JC (1993) The woman with breast cancer: Psychosocial considerations. *Cancer Bulletin,* **45**, 538-42.

Given B, Given CW (1992). Patient and family caregiver reaction to new and recurrent breast cancer. *J Am Med Women's Assoc,* **47**, 201-06.

Grunfield E, Coyle D, Whelan T, et al (2004). Family caregiver burden: results of a longitudinal study of breast cancer patients and their principal caregivers. *Can Med Assoc J ,* **170**, 1795-801.

HarirchiI, MontazeriA, BidokhtiFZ, et al (2012). Sexual function in breast cancer patients: a prospective study from Iran. *J Exp Clin Cancer Res*, **9**, 20.

Hodgkinson K, Butow P, Hunt GE, et al (2007). Life after cancer: couples and partners psychological adjustment and supportive care needs. *Support Care Cancer*, **15**, 405-15.

Hong JS, Tian J (2014). Prevalence of anxiety and depression and their risk factors in Chinese cancer patients. *Supportive Care Cancer*, **22**, 453-9.

Manne S, Ostroff J, Sherman J, et al (2003). Buffering effects of family and friend support on associations between partner unsupportive behaviors and coping among women with breast cancer. *J Soc Personal Relationships*, **20**, 771-92.

Manne S, Sherman M, Ross S, et al (2004). Couples' support-related communication, psychological distress, and relationship satisfaction among women with early stage breast cancer. *J Consult Clin Psychol*, **72**, 660-70.

McPherson K, Steel CM, Dixon JM (2000). ABC of breast disease. Breast cancer-epidemiology, risk factors, and genetics. *BMJ*, **9**, 624-8.

Mirowsky J, Ross C (2003). Education, social status and health. walter de gruyter Inc. New york

Morris T, Greer HS, White P (1977). Psychological and social adjustment to mastectomy: A two-year follow up study. *Cancer*, **40**, 2381-7.

Nazlican E, Akbaba M, Okyaya RA (2012). Evaluation of depression in newly diagnosed breast cancer cases in Hatay province of Turkey in 2011. *Asian Pac J Cancer Prev*, **13**, 2557-61.

Nik Jaafar RN, Selamat Din SH, SainiSM, et al (2014). Clinical depression while caring for loved ones with breast cancer. *Comprehensive Psychiatry,* **55**, 52-9.

PelusiJ (2006). Sexuality and body image. *Cancer Nurs,* **29**, 32-8.

Pumo V, Milone G, Iacono M, et al (2012). Psychological and sexual disorders in long-term breast cancer survivors. *Cancer Manag Res*, **4**, 61-5.

Rust J, Golombok S (1986). The GRISS: a psychometric instrument for the assessment of sexual dysfunc-tion. *Arch Sex Behav,* **15**, 157-65.

Schou I, Ekeberg O, Ruland CM (2004). Pessimism as a predictor of emotional morbidity one year following breast cancer surgery. *Psychooncology*, **13**, 309-20.

Schover LR(1999).Counseling cancer patients about changes in sexual function. *Oncology*, **13**, 1585-91.

Segrin C, Badger T.A, Meek P, et al (2005). Dyadic interpendence on affect and quality of life trajectories among women with breast cancer and their partners. *J Soc Personel Relationships,* **22**, 673-89.

Segrin C, Badger, TA Dorros S, et al (2007). Interdependent anxiety and psychological distress in women with breast cancer and their partners. *Pschooncology*, **16**, 634-43.

Smigal C, Siegel R, Jemal A (2007). Breast cancer facts & figures 2005-2006, American cancer society, Atlanta, Georgia

Stanton A, Reed G (2003). The breast cancer notebook: The healing power of reflection. Washington, D.C. American Psychological Association.

Stienberg MD, Juliano MA, Wise L (1985). Psychological outcome of lumpectomy versus mastectomy in the treatment of breast cancer. *Am J Psychiatry*, **142**, 32-9.

Stillerman AH. Sexual adjustment to mastectomy: Descreption comparison with partner's perspective and prediction of sexual adjustment. *Dis Abstr Northwestern Univ*, 1984.

Sun MQ, Meng AF, Huang XE, Wang MX(2013). Comparison of psychological influence on breastcancer patiens between breast-conserving surgery and modified radical mastectomy. *Asian Pac J Cancer Prev*, **14**, 149-52.

Tugrul C, Oztan N, KabakciE (1993). Golombok-rust cinsel doyum olcegi'nin standardizasyon calısması. *Turk PsikiyatriDergisi*, **4**, 83-8.

Yavuzsen T, Karadibak D, CehreliR, Dirioz M (2012). Effect of group therapy on psychological symptoms and quality of life in Turkish patients with breast cancer. *Asian Pac J Cancer Prev*, **13**, 5593-7.

Vanderwerker LC, Laff RE, Kadan-Lottick NS, et al (2005). Psychiatric disorders and mental health service use among caregivers of advanced cancer patients. *J Clin Oncol,* **23**, 6899-907.

Vukojevic M, Peric I, Kordic M (2012). Anxiety and depression in oncology patients in the mostar university clinical hospital. *Lijec Vjesn,* **134**, 208-14.

Wang X, Wang SS, Peng RJ, et al (2012). Interaction of coping styles and psychological stress on anxious and depressive symptoms in Chinese breast cancer patients. *Asian Pac J*

Cancer Prev, **13**, 1645-9.
Wilmont MC (1998). " Sexuality" in psychosocial dimensions of oncology nursing care. Burke CC (ed). Pittsburg: Oncology Nursing Press.
Yusoff N, Low WY, Yip CH (2011). Psychometric properties of the Malay Version of the hospital anxiety and depression scale: a study of husbands of breast cancer patients in Kuala Lumpur, Malaysia. *Asian Pac J Cancer Prev*, **12**, 915-7.
Zainal NZ, Nik-Jaafar NR, Baharudin A, SabkiZA, Ng CG (2013). Prevalence of depression in breast cancer survivors: a systematic review of observational studies. *Asian Pac J Cancer Prev*, **14**, 2649-56.
Zigmond AS, Snaith RP (1983). The hospital anxiety and depression scale. *Acta Psychiatr Scand,* **67**, 361-70.